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(54) **A method of baking bread products**

(57) A method of baking bread products comprises the steps of preparing a pre-ferment consisting of flour, water and distillers yeast, mixing this pre-ferment with dough, forming individual dough pieces, and subjecting the dough pieces to a proofing environment. The dough pieces are then partially baked in conditions arranged to structure the product and to initiate crust formation without completing said formation, and, after a delay, the part-baked dough pieces are finally baked. The incorporation of distillers yeast into the pre-ferment results in a product which remains fresh for a substantial period, typically up to 72 hours, after completion of the baking process.

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possible to the time of sale. This procedure satisfies objective a). However, such products tend to stale rapidly, and are costly to produce because of the freezing process, so that objectives b) and c) are no longer met. Additionally, such a procedure is only applicable to relatively small products, it being difficult to recover large bread products from the freezing stage, while the flavour of products which are part-baked, frozen, unfrozen and subsequently finally baked has been found to suffer.

In-store bakeries have the advantage of being able to bake in the shop selling the product and can schedule production to be completed as nearly as possible to the time of sale. However, this involves more cost because of the smaller scale of production, higher cost of ingredients, and difficulty of controlling the consistency of the product. Thus, objectives a) and b) are met, but not objective c).

It would be desirable to be able to provide a method of baking the full range of bread products which enabled the products to be partially baked in a large scale bakery, transported and stored at ambient temperature and finally baked as nearly as possible to the time of sale, the resultant product not being subject to the accelerated staling process normally associated with previously frozen products, and the cost of production of such products being comparable with that of products fully baked at the bakery.

According to the present invention, there is provided a method of baking bread products comprising the steps of:

partially baking dough pieces in conditions arranged to structure the product and to initiate crust formation, said crust

Conveniently the mixing of the pre-ferment with the primary dough consists of a slow mixing stage, typically 2 minutes at 90 beats per minute, followed by a fast mixing stage, typically 6 to 7 minutes at 185 beats per minute.

In a preferred method, salt is added between the slow and fast mixing stages, this late addition of salt compared with conventional processes serving to improve the stability of the resultant product.

By way of example only, a method according to the invention will now be described in greater detail.

The main intention of the method of the invention is to provide the In-store baker with products for the consumer that are comparable with those that have been freshly prepared and baked.

The method is initiated by the preparation of a pre-ferment consisting of flour, water, distillers yeast and a food source. Preferred food sources are sugar, malt flour and yeast extract to encourage fermentation of the yeast, and milk powder to encourage production of the bacteria, the combination being chosen dependent upon the desired final flavour of the product.

A preferred pre-ferment consists of 20.0% flour, 3.0% granulated sugar, 1.5% low diastatic malt flour, 54.25% water, 10.0% distillers yeast, 0.25% milk powder and 11.0% yeast extract, all percentages being based on the final mix weight.

The pre-ferment is retained at a temperature of between 25°C and 35°C for between 2 and 6 hours to allow fermentation until the final flavour characteristics are developed. At this stage, the pre-ferment is transferred to a holding tank where it is

products to be easily machined prior to its final mould - ie. after an intermediate proof stage - the finally moulded products are placed in a final proofing environment until the desired size is reached. A typical environment for this final proofing has a relative humidity of between 50% and 80%, and a temperature of between 30°C and 40°C, this final leavening taking between 40 and 60 minutes.

Once proofing is completed, the product is cut or seeded if required, and is located in a conventional oven where it is partially baked at a temperature of between 300°C and 350°C for between 20 and 35 minutes, this time being such as to bake the product for between 75% and 90% of the time required to obtain a fully baked loaf.

When the product has been located in the oven, steam is injected into the oven which has a contact time on the product of between 10 and 35 seconds. This steam helps to set the crust characteristics and helps rapid gelatinisation of the surface starch to form an elastic skin on the product which contributes to enhance the volume and shape of the product during the initial bake.

On removal of the part-baked products from the oven, they are ambient cooled for between 20 and 90 minutes depending upon their size and density, after which they can be wrapped, for example in plastic film, or retained unwrapped prior to transportation to the point of sale, and prior to the final bake which can be delayed for typically 2 days without affecting the quality of the product.

The time and temperature of the final bake will vary

The faster mixing stage of the method of the invention is somewhat longer than in conventional methods, helping the dough to become sufficiently developed so that the product is more easily machinable.

The dough conditioners incorporated in the mix may comprise mono and di-glycerides of fatty acids, mono and diacetyltartaric acid esters of mono and di-glycerides of fatty acids, ascorbic acid and a permitted enzyme combination. The introduction of mono and diacetyltartaric ester combinations, together with a selected enzyme system gives the crumb structure some softness and improves the shelf life by retaining more moisture within the starch molecules and also by slowing down the rate of re-alignment of the amylopectin fraction.

Ascorbic acid is used to enhance the strengthening and mechanical properties of the gluten chains which help form the essential support structure, and also give the dough a better capacity to retain the carbon dioxide gas produced during fermentation.

The initial bake, which is preferably 80%-90% of the time associated with complete baking, improves the visual appearance of the product in a number of ways, in that it prevents collapse and improves stability, it eliminates the formation of any under baked features, and it sets the crust characteristics sufficiently for the product to retain its form.

The delayed final bake is responsible for the regeneration of the crust characteristics, setting crust colour and softening the crumbs. A typical second bake profile for a 400 gram loaf is 200°C for 5 to 7 minutes, and for a 280 gram baguette is 200°C

conditions for up to 72 hours whilst staying fresh. No chemical preservatives are needed to counter mould growth.

which the mixing of the pre-ferment with the primary dough consists of a slow mixing stage followed by a fast mixing stage.

5. A method as claimed in claim 4 in which the slow mixing stage comprises 2 minutes at 90 beats per minute and the fast mixing stage comprises 6 to 7 minutes at 185 beats per minute.

6. A method as claimed in any one of claims 1 to 5 in which, during mixing of the pre-ferment with the dough, salt is added to the mixture.

7. A method as claimed in claim 6 together with claim 4 or claim 5 in which the salt is added between the slow and fast mixing stages.

8. A method of baking bread products substantially as described.

9. A bread product baked according to the method of any one of claims 1 to 8.

10. A bread product substantially as described.